Original Article

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Obesity in Women of Reproductive Age

Dilafruzhon Ravshanovna Maksudova[1], Khurshidakhon Kudratullayevna Nasyrova[1]

[1]Tashkent Pediatric Medical Institute, Tashkent, Uzbekistan.

Abstract

This article provides information about the relationship between obesity and disorders of the reproductive system. Lifestyle factors are changeable habits and lifestyles that can greatly affect overall health and well-being, including fertility. Overweight contributes to menstrual cycle disorders, infertility, miscarriage, unfavorable pregnancy outcome, deterioration of fetal well-being and diabetes mellitus.

Keywords: Obesity, Reproductive Disorders.

Corresponding Author: Dilafruzhon Ravshanovna Maksudova, Tashkent Pediatric Medical Institute, Tashkent, Uzbekistan

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Introduction

The relevance of the problem. According to the WHO definition, reproductive health is a state of complete physical, mental and social well-being, and not just the absence of diseases or ailments, in all matters concerning the reproductive system, its functions and processes.[1,2,3]

The World Health Organization has determined that "... reproductive health protection encompasses reproductive processes, functions and the system at all stages of life and, therefore, aims to ensure that people can lead responsible, satisfying and safe sexual lives, as well as be able to maintain the ability to procreate and be able to choose whether to have children, when and in what quantity".[4,5,6]

Exogenous and endogenous determinants of environmental health include everything that surrounds us, and environmental impacts include not only physical, chemical and biological factors, but also hormones, diet and lifestyle. Since most people develop in a predictable way, moving from a fertilized egg to a fetus, newborn, toddler, child, teenager and adult, there is no doubt that the environment is a powerful modifier of human reproduction and development. The reproductive system is very sensitive to the effects of adverse environmental factors. According to Revich V.A., "... the formation of an environmentally dependent pathology of the reproductive system is influenced by specific, non-specific and constitutional factors".[7,8,9]

Obesity as a global burden

The prevalence of obesity continues to grow among women of reproductive age in the United States and has serious consequences for the health of pregnant women.[10,11] Almost 25% of pregnant women in the United States are obese, with the highest prevalence among underrepresented racial and ethnic groups.[12,13,14] Women with adverse pregnancy outcomes (APOS) associated with obesity, such as gestational diabetes (HD) and hypertensive pregnancy disorders (GBD), from previous pregnancies can benefit from aggressive weight management in the postpartum period and in the period between pregnancies. However, the current obesity guidelines in the United States do not take into account the history or intentions of pregnancies and do not take into account obesity-related APOS when deciding whether to strengthen obesity therapy. This omission represents a potentially missed opportunity to initiate aggressive weight loss intervention and reduce postpartum weight delay, which is closely associated with the onset and persistent obesity, as well as pre-pregnancy obesity for future pregnancies.[15,16]

To date, one of the main problems of women's health is the identification of factors associated with the risk of adverse obstetric outcomes. More and more scientific studies show that infertility and reproductive function disorders caused by pathologies such as endometriosis, adenomyosis, polycystic ovary syndrome and uterine fibroids can have a negative impact on pregnancy from implantation to delivery. In addition, many women with reproductive function disorders and/or infertility require assisted reproductive technologies (ART), which can independently influence pregnancy outcomes.[17,18,19]

Hormonal regulation and inflammation are the mechanisms that are involved in all major processes of the reproductive system, such as ovulation, menstruation, embryo implantation and pregnancy. There is increasing evidence that hormonal aberrations and a strong inflammatory process can lead to disorders of immune-endocrine cross-reactions between the endometrium, myometrium and cervix, which in turn lead to pregnancy complications.[20,21,22]

Emerging reproductive health disorders manifest themselves in the form of decreased fertility, approximately 10 to 15% of couples suffer from infertility.[23,24,25] Recently, great interest has been aroused by the key role of lifestyle factors in the development of infertility. Lifestyle factors are changeable habits and lifestyles that can greatly affect overall health and well-being, including fertility. Many lifestyle factors, such as the age of starting a family, nutrition, weight, exercise, psychological stress, environmental and occupational exposure, and others, can have a significant

impact on fertility recovery.[26,27,28]

Adipose tissue participates in the proper regulation of the reproductive system, "... and therefore, in order for a girl to have a normal menstrual cycle at puberty, a threshold, minimum amount of fat should accumulate in her body".[29,30,31] However, it has now been convincingly shown that obesity has serious consequences for the reproductive system, depending on the amount and distribution of fat in the body. Epidemiological data clearly show that overweight contributes to menstrual cycle disorders, infertility, miscarriage, unfavorable pregnancy outcome, deterioration of fetal well-being and diabetes mellitus [32]. In women of fertile age with obesity, reproductive disorders in the form of an irregular menstrual cycle, such as oligomenorrhea, are much more common in 60%, and amenorrhea occurs in 29% of women.[33]

Obese women have a lower frequency of pregnancies and live births compared to women of normal weight. When women become pregnant against the background of obesity, they can be classified as a group of women with a high risk of miscarriage.[34] Such patients are at risk of gestational diabetes, hypertension and preeclampsia, urinary tract infections, thromboembolism, increased maternal mortality, high probability of cesarean section and postpartum bleeding, in addition, fetal complications may occur, for example, macrosomia, neural tube defects and stillbirth.[35]

The rapidly growing number of people with obesity and related complications has led to an understanding of the great role of adipose tissue as an active potential participant in the control of physiological and pathological processes. To date, adipose tissue is considered as an endocrine organ capable of mediating biological effects on metabolism and inflammation, contributing to the maintenance of energy homeostasis and, possibly, the pathogenesis of metabolic and inflammatory complications associated with obesity. The inflammatory process in adipose tissue leads to a sharp increase in circulating levels of pro-inflammatory cytokines, hormone-like molecules and other inflammatory markers, collectively defined by "adipokines". Adipocytes secrete such an adipokine as leptin, which is directly proportional to the mass of adipose tissue, as well as the state of nutrition.[36] Thus, a decrease in fertility in women is often associated with obesity and insulin resistance, and both of these features are associated with leptin and its receptors. Serum leptin levels are higher in obese women, which is manifested by a change in the production of gonadotropins and causes a violation of the ovulation process.[37] But the relationship between leptin and insulin sensitivity, sex steroids and insulin concentration in ovarian dysfunction is still not fully understood problem.

The research of some authors has several important consequences. First, it was found that women of reproductive age with normal weight who do not engage in recommended levels of physical activity are at risk of being overweight or obese.[38] Current guidelines from the U.S. Preventive Services Task Force recommend that, after screening all adults for obesity, obese patients should be offered intensive lifestyle change counseling, including increased physical activity.[39] The authors' results show, however, that meeting the recommended levels of physical activity can protect women from transitioning from normal weight to overweight status. Thus, an important public health recommendation may be that this counseling should be extended to non-obese women as a strategy to prevent the development of obesity among women of childbearing age.

Secondly, adverse changes in body mass index (BMI) are common among women of normal weight who have given birth to live births. It is important that these women receive advice about appropriate weight gain during pregnancy, weight loss strategies after childbirth, and about taking and maintaining physical activity levels in accordance with recommended guidelines.

Thirdly, women of reproductive age who are overweight and have a lower level of education need to monitor the risk of obesity.[40] A lower level of education may be associated with less awareness of the importance of weight for future health and about healthy behaviors that can prevent obesity, for example, compliance with physical activity recommendations.

Fourth, because in this and other studies, younger overweight women are at a higher risk of becoming obese.[41,42] It should not be assumed that a younger age is protective. Rather, counseling activities aimed at promoting healthy weight-related behaviors should also be targeted at younger women of reproductive age.[43,44]

Also, the data show that the transition to less favorable weight categories in women of reproductive age occurs often and quickly. Taking into account the context of the stage of reproductive life is an important aspect of monitoring and eliminating adverse weight changes in women, since these changes will have detrimental effects on women's health in the long term and on the risk of adverse pregnancy outcomes if pregnancy occurs.

Conclusion

Thus, maintaining the recommended level of physical activity should be encouraged among women of reproductive age with normal body weight, as well as women with overweight or obesity, since low physical activity represents a risk of transition from normal to overweight.

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